KTO Karatay Üniversitesi Sağlık Bilimleri Dergisi
Geliş Tarihi: 13/09/2021
Yıl 2022 | Cilt 3 | Sayı 1
Review Article / Derleme Makalesi
KTO Karatay University Journal of Health Sciences
Kabul Tarihi:11/02/2022
ISSN: 2717-8501

Practices Related to Placenta and Umbilical Cord in Postpartum Period

Doğum Sonrası Dönemde Plasenta ve Umblikal Kordona İlişkin Uygulamalar

Suzi ÖZDEMİR[1] Ayşegül ŞİMŞEK[2]

ABSTRACT

Although the physical function of the placenta and cord for the infant ends after birth, the belief that the spiritual and religious function of these materials will continue throughout the life of the infant is widespread in most countries. Due to this belief, some rituals such as burying, making art and lotus birth are practiced. Especially in recent years, there has been an increase in placentaphagia cases. Additionally, it is known that placenta and umbilical cord, which are rich in young cells, are used in medical and cosmetic fields, mostly for dermal and hematological diseases, and cord blood banking practice is becoming increasingly common. The aim of this review is to examine the advantages and disadvantages of traditional and medical practices regarding placenta and umbilical cord, and to inform health professionals dealing with women and her babies on these practices.

Keywords: Care, midwifery, placenta, postpartum period, umbilical cord

ÖZET

Doğum sonrası plasenta ve kordonun bebek için fiziksel işlevi sona ermesine rağmen çoğu ülke ve topluluklarda plasenta ve kordonun ruhani ve dini işlevinin bebeğin yaşamı boyunca devam edeceği düşüncesi hâkim olmaktadır. Bu düşünce ile kordon ve plasenta için toprağa gömme, sanat yapma ve lotus doğum gibi birtakım ritüeller uygulanmaktadır. Ayrıca son dönemlerde anne psikolojisine iyi geldiği ve sütü arttırdığı düşüncesi ile uygulanan plasentafaji olgularında da artış görülmektedir. Bununla birlikte genç hücreler bakımından zengin olan fetüsün bu eklerinin tıbbi ve kozmetik alanda da çoğunlukla dermal ve hematolojik hastalıklar için kullanıldığı, kordon kanı bankacılığı uygulamasının giderek yaygınlaştığı bilinmektedir. Bu derlemede plasenta ve umblikal kordona ilişkin geleneksel ve tıbbi uygulamaların avantaj ve dezavantajları incelenmekte ve kadın ve bebek ile ilgilenen sağlık profesyonellerine bu uygulamalar konusunda bilgilendirme yapmak amaçlanmaktadır.

Anahtar kelimeler: Bakım, ebelik, plasenta, doğum sonrası dönem, umblikal kord

[1]Araştırma Görevlisi, Uzman Ebe, Kocaeli Üniversitesi, Sağlık Bilimleri Fakültesi, Ebelik Bölümü, İzmit, Kocaeli, Türkiye, ORCID: 0000-0003-2437-9169
[2] Doktor Öğretim Üyesi, İstinye Üniversitesi, Sağlık Bilimleri Fakültesi, Ebelik Bölümü, İstanbul, Türkiye, ORCID: 0000-0002-2166-1778
Sorumlu Yazar: Suzi ÖZDEMİR, Kocaeli Üniversitesi, Sağlık Bilimleri Fakültesi, Ebelik Bölümü, Umuttepe Kampüsü, İzmit, Kocaeli, Türkiye, e-mail: suzi.ozdemir@gmail.com

INTRODUCTION

Today, there is an increase in traditional or medical practices regarded to the additions of the fetus, such as the umbilical cord and placenta born with the fetus, and these practices vary widely between cultures (Kroløkke and Dickinson, 2018). In the medical sense, at birth, the placenta and umbilical cord are considered "medical waste" (Dickinson et al., 2017). It is traditionally thought to be valuable and sacred. In these cultures, various rituals such as burying, eating, drying, making art and lotus birth are applied to the placenta, and cord is to bless the mother, infant, and infant's life (Hayes, 2019). In addition to traditional applications, medical applications are also carried out in the cosmetic and pharmacological fields related to the placenta and umbilical cord (Azzopardi and Blundell, 2018; Kroløkke and Dickinson, 2018).

Although there is not enough scientific evidence for the possible benefits and harms of applications related to the placenta and umbilical cord after postpartum, such practices continue and cause the emergence of risky situations in terms of individual and public health (Bosco and Díaz, 2018). Especially in underdeveloped countries, it is reported that most of the women choose not to give birth in health institutions because of the fear that traditional practices will not be implemented, and those who give birth want to take fetus supplements and this situation causes conflicts with the institution (Dickinson et al., 2017). In line with this information, this review aims to examine the advantages and disadvantages of traditional and medical practices related to placenta and umbilical cord and raise awareness of the issue for health professionals.

Traditional Practices

Despite the advancement of technology and Science from past to present, it is known that traditional practices which are specific to cultures have not been abandoned and they are still ongoing. The most common traditional practices of placenta and umbilical cord are burial in the ground, using it as artistic object, placentophagy and lotus birth.

1. Burying the placenta and umbilical cord in the ground

The Placenta burying ritual is a traditional method, it is applied due to many different reasons. It is reported that in some cultures Placenta is considered dirty, while in some cultures it is buried in the ground as a ritual that blesses the completion of pregnancy and childbirth, and honors the woman's journey to motherhood (Qamarazher, 2017; Sharma et al., 2016) In many cultures in the literature, the placenta is associated with the behavior and future of the infant.

While Polynesian culture has the idea that the placenta will be re-born is dominant (Saura, 2002), it is reported that it is seen as an object where bad spells will be cast the child and the family in Pakistan, so it is buried (Qamarazher, 2017). In Central Asia, Thailand, the west of Mexico and Nepal, the burial ritual is given importance because of their belief that placenta symbolizes an object of respect and loyalty to the community and being healthy. It is also believed that toys put home are associated with the burial (Sharma et al., 2016). In Niger, which is a West African country, it is thought that the placenta associated with the reproductive ability of the women, and it is buried with a special technique. However, burying it with the wrong technique will cause infertility, and the burying of the placenta is the last process that completes the ritual (Cooper, 2019). Similarly, it is known that while the ritual of burying the umbilical cord is being implemented, the burial place should be the garden of sacred space,

school, and hospital. When the studies conducted in the Southeast, Central Anatolia and Marmara regions are examined, it is seen that there are practices that support this belief (Ergün et al., 2019).

In line with these studies, it was concluded that the burying of the placenta and umbilical cord continues in almost every culture in the world. The place where the umbilical cord buried is associated with the health and future of the infants. The practice of burying is a process that does not harm the mother and infant health, and health professionals should be informed that women and their family should respect their wishes in this direction.

2. Placentophagy

Placentophagy is defined as the consumption of maternal placenta by the mother or someone else as a nutrient (Hayes, 2016). Most of the mothers consume their placentas in various forms, such as eating raw or cooking, drinking by making liquid beverages, or by encapsulating and swallowing after processing it for the purpose of health benefits, including spiritual recovery and increasing milk production (Selander et al., 2013). Placentophagy was first found in the literature in the United States of America (Bosco and Díaz, 2018). Today, almost a third of mothers in the US eat their own placenta, and more than 70% claim that it prevents postpartum depression (Johnson and Groten, 2018). Placentophagy and maternal behavior studies are limited to animal experiments. It has been reported that maternal-infant attachment or the effect of analgesics applied to the mother increase in these experiments (Kristal et al., 2012). In many studies, it has been reported that the placenta provides metabolic exchange between mother and fetus, acts as a protective barrier for the fetus and preventing the passage of harmful agents to the fetus, which can affect its normal development (Bosco & Díaz, 2018; Hayes, 2016). Therefore, it is thought that consuming the placenta, which contains harmful pathogens, will have negative effects on maternal health (Bosco and Díaz, 2018; Farr et al., 2018). The Center for Disease Control and Prevention (CDC) has issued a warning based on the development of group B Streptococcal sepsis in a newborn infant after a mother consumed contaminated placenta capsules containing Group B Streptococci. Healthcare professionals should inform their clients that “the benefits of phloeophagy are not supported by any scientific evidence” (Farr et al., 2018). Contrary to this information, the articles published on social media, blogs or websites do not include information about placentophagy and it may cause infection transmission (Bosco and Díaz, 2018). Placentophagy has not been revealed as scientific evidence in Turkey. However, it is thought that the possibility of being seen may arise with the influence of popular culture. Therefore, health professionals should explain the potential effects of consuming the placenta to the family, especially mothers.

3. Lotus birth

Lotus birth is defined as a holistic practice that avoids cutting the umbilical cord after birth according to the nonviolent principle and it is the idea of ensuring the newborn is born without being exposed to violence and is expected to separate from the newborn spontaneously (usually up to 10 days after birth) (Gönenç et al., 2019; Hayes, 2019). If the newborn is not artificially leaving the placenta, it is thought that the newborn will have a stronger immune system, since

all the "vital force" and a significant amount of blood in the placenta will pass to the newborn (Bonsignore et al., 2019).

Lotus birth first began to be heard when a healer noticed that chimpanzees left their babies tied to the placenta after birth and did not cut the cord, and then practiced it in their own birth, at that point hundreds of women turned to this practice (Zinsser, 2018). Today, there is an increase in the number of women and families who want to practice lotus birth in the world and in Turkey. In the study results, it was reported that the mothers saw the placenta as a part of the infant rather than a medical product, and thus thinking that the placenta and umbilical cord should separate spontaneously when it is ready (Monroe et al., 2019).

The studies on the benefits of delayed cord clamping to the newborn have reported an increase in the hemoglobin level and iron supplies of the newborn. In current guidelines, it is recommended that the clamping of the cord should be delayed for at least 30-180 seconds (ACOG, 2017; WHO, 2015). Contrary this situation, there has not been enough evidence on the possible benefits or harms of not clamping or cutting the cord (Hayes, 2019). Since there is no circulation in the placenta in the postpartum period, the tendency to infection increases and there is a risk of transmission of the developing infection to the newborn (Monroe et al., 2019). The relationship between lotus birth conditions such as neonatal hepatitis and hyperbilirubinemia supports this situation (Monroe et al., 2019). In a study conducted with nine women in Turkey, the reasons for choosing the lotus birth were searched and it was found that they thought there was a spiritual relationship between the newborn and the placenta, however, cutting the umbilical cord was disrespectful to the placenta. In addition to this, hyperbilirubinemia developed in only one newborn and no infection was observed in any newborn (Gönenç et al., 2019).

There is not enough evidence-based data to interfere with parents' lotus birth preferences. Therefore, the pregnant woman and her family should respect the lotus birth request. However, the possible harms and benefits should be explained clearly. In addition, since the available evidence consists of case reports, additional research is needed to determine whether there are risks of infection or other risks in this practice.

4. Making art with the placenta and umbilical cord

Nowadays, there are practices for making art with placenta and umbilical cord, and these practices in the form of printing the placenta (plasenta print art), drying and storing after shaping the umbilical cord, and making ornaments or jewelry from the placenta and cord (Nolan, 2011; Selander et al., 2013). These practices are thought to occur for some reasons, such as parents want to honor the birth and to leave a memory for their children (Selander et al., 2013). In placental prints, the placenta is made like a tree of life (Nolan, 2011), while the umbilical cord is dried in the form of a dream catcher or name and preserved as the eternal symbol of a mother's physical connection with her child (Schoenwald, 2016).

These traditions are considered to be practices that do not harm mother and infant health, providing that they are performed under clean and hygienic conditions. Health professionals should inform families who are considering these practices about hygiene conditions.

Medical Practices

Materials related to placenta and umbilical cord are used in various medical fields and the most common practices are medicine and cosmetic field practices and storing of umbilical cord blood.

1. Medical practices related to placenta and umbilical cord

Placenta preparations (placental tissue, amniotic and chorionic membranes, umbilical cord, amniotic fluid, placental extracts and cord blood stem cells) are used as a traditional therapeutic agent in the treatment of diseases or the regeneration of the vital essence in many Asian countries. It is commonly used on humans through intradermal, intramuscular, intravenous, biological valves and oral routes (Jung et al., 2011).

It is known that placental preparations are used in Asian countries, especially dermal diseases in wounds such as scalds and ulcers, restoration of the cornea, liver regeneration, prevention or reduction of menopausal symptoms, relieving chronic fatigue and in the prevention of intestinal adhesion, and this extract is thought to relieve pain and accelerate epithelization (Jung et al., 2011; H. Park et al., 2018). Placental preparations, which are subjected to various chemical processes and disease diagnosis, are applied to those who request and reported to be effective in psychological problems such as concentration and stress (Jung et al., 2011; Kim et al., 2015; H. Park et al., 2018).

In a study examining the effect of acupuncture point injection with placenta extract on pain reduction and common side effects in patients with knee osteoarthritis, a decrease in pain and edema was reported in patients (K. M. Park and Cho, 2017). In another study, researchers stated that placenta extract significantly improved physical function, sexual life, and overall health perception (Kong and Park, 2012). Contrary to these studies, it was reported in a study that a patient diagnosed with Achilles tendinitis showed signs of an worsening of the disease table and infection after the practice of a placental preparation (Kim et al., 2015).

Nowadays, with the advancement of technology, it is thought that developing products from human placenta extracts will be safer and more effective. In the light of this information, it is thought that more studies are needed to investigate the potential benefits and harms of medical practices related to placenta and umbilical cord.

2. Cosmetic practices

The human placenta is a therapeutic agent and contains ingredients that have effective regenerating activities on the skin, increasing the firmness and elasticity of the skin (Shinde et al., 2009). Placenta extract has long been used as a cosmetic supplement for skincare and skin pigmentation (Piyali and Debasish, 2012); However, it is widely used in dermal problems such as psoriasis, urticaria, skin discoloration, and hair loss (Shinde et al., 2009). According to these results, although human placental extract appears to have potential cosmetic applicability, there are studies showing that personal care products containing placenta extract cause premature sexual development in infants or young children (Donovan et al., 2007).

Products made from the human placenta, which are rich in hormones, may cause possible health risks. Pregnant and breastfeeding women should be advised to consult their healthcare professionals before using these products.

3. Cord blood banking

Bone marrow, peripheral blood stem cells and umbilical cord blood are the source of stem cells for children and adults who are faced with life-threatening diseases and need blood-forming cells transplantation (Dunbar and Szczepiorkowski, 2010). Cord blood stem cells are mainly used in the treatment of hematological malignancies in children (Lauber et al., 2010). Stem cells are also expected to be used in the future to treat spinal cord injury, cerebral palsy, diabetes, heart disease, stroke and Parkinson's disease (Grieco et al., 2018).

Cord blood collection is a quick and painless procedure during delivery (Grieco et al., 2018). An average of 120 ml of blood can be collected without any risk to the mother or infant. Cord blood collection at the third stage of labor, which requires careful care for both the mother and her infant and the risk of postpartum hemorrhage, should not endanger the health of the mother and newborn, and should not interfere with delayed cord clamping (Armson et al., 2015).

Nowadays, the increase in the use of stem cells has led to the establishment of cord blood banks where umbilical cord blood can be stored (Azzopardi and Blundell, 2018). Cord blood banking in Turkey has started in 2003, including 2 public, there are 6 cord blood banks, and it is estimated that approximately fourteen thousand cord bloods stored in these centers (TÜBA, 2014).

Despite the growing evidence of the therapeutic benefits of umbilical cord-derived stem cells and the promotion of umbilical cord blood intake in the media, studies reveal that many pregnant women and their families do not know about cord blood and banking. In a study conducted with 254 pregnant women to determine the awareness level of pregnant women about cord blood in India, it was found that only 26.5% of the participants could define cord blood banking (Pandey et al., 2016). In the study by Katz et al. (2011), in which they examined the awareness of 1620 pregnant women about cord blood stem cells in five European countries (France, Germany, Italy, Spain and United Kingdom) and their attitudes towards banking options, it was reported that 79% of the participants had very little awareness of cord blood banking, 58% of the participants were aware of the therapeutic benefits of cord blood, and 21% of them reached information through midwives and obstetricians (Katz et al., 2011). In a study conducted in Turkey (n=322), likewise, it was reported that 75,4% of mothers lack information about cord blood bank, and those who have information have access to this information mostly from the internet and the media, and to a lesser extent through health professionals (Ozturk et al., 2017).

Midwives and other health professionals should be actively involved in providing antenatal training on policies regarding cord blood banking and cord blood collection, and in the development of collection protocols to increase cord blood volume and quality. In addition, midwives should inform pregnant women and their families about the benefits of delayed cord clamping and its effects on cord blood collection and banking.

CONCLUSION

Despite the advancement of science and technology, traditional practices of placenta and umbilical cord still continue. Nowadays, it can be seen that many different medical practices

have been added to these practices. The lack of sufficient scientific evidence about the benefits and harms of traditional and medical practices regarding the placenta and umbilical cord on the mother and infant causes dilemmas about whether these practices should be recommended or not. Therefore, more evidence-based studies and well-informed and educated health professionals are needed. Thus, in the light of scientific evidence, it is thought that healthcare professionals can inform and educate the society, especially women, about the possible benefits and harms of traditional and medical practices regarding placenta and umbilical cord.

Declarations of Interest Statement

No potential conflict of interest was reported by the author(s).

Funding

This research did not receive any specific grant from funding agencies in the public, commercial or not for profit sectors.

Author Contributions

Contribute to the emergence and maintenance of the article: SÖ
Plan, design: SÖ, AŞ
Finansing: -
Material: -
Data collection / processing of collected data to prepare for analysis: -
Data analysis: -
Review of the literatüre: SÖ, AŞ
Critical Review: SÖ, AŞ
Kaleme alma ve düzeltmeler: SÖ, AŞ
Checking and reviewing: SÖ, AŞ

REFERENCES

American College of Obstetricians and Gynecologists (ACOG). (2017). Delayed Umbilical Cord Clamping After Birth. Available at: https://www.acog.org/clinical/clinical-guidance/committee-opinion/articles/2017/01/delayed-umbilical-cord-clamping-after-birth.

Armson, A., Allan, D. S., & Casper, R. F. (2015). Umbilical cord blood: Counselling, collection, and banking. Journal of Obstetrics and Gynaecology Canada, 37(9), 832–844. https://doi.org/10.1016/S1701-2163(15)30157-2

Azzopardi, J. I., & Blundell, R. (2018). Review : Umbilical cord stem cells. Stem Cell Discover, 8, 1–11. https://doi.org/10.4236/scd.2018.81001

Bonsignore, A., Buffelli, F., Ciliberti, R., Ventura, F., & Molinelli, A. (2019). Medico-legal considerations on “Lotus Birth” in the Italian legislative framework. Italian Journal of Pediatrics, 45(39), 4–9. doi: 10.1186/s13052-019-0632-z

Bosco, C. B., & Díaz, E. G. (2018). Placentophagy: A controversial trend. International Journal of Research in Medical Sciences, 6(6), 1841–1846. doi: http://dx.doi.org/10.18203/2320-6012.ijrms20182260

Chakraborty, P., & Bhattacharyya, D. (2012). Aqueous extract of human placenta as a therapeutic agent. In: Zheng J, editor. Recent Advances in Research on the Human Placenta. Croatia: InTech; 2012. p. 77–92. doi: 10.5772/31669

Cooper, B. M. (2019). Traveling companions: The burial of the placenta in Niger. African Studies Review, 62(2), 127–148. https://doi.org/10.1017/asr.2018.17

Dickinson, E., Foss, K., & Kroløkke, C. (2017). Empowering disgust: Redefining alternative postpartum placenta practices. Women's Studies in Communication, 40(1), 111–128. https://doi.org/10.1080/07491409.2016.1247400

Donovan, M., Tiwary, C. M., Axelrod, D., Sasco, A. J., Jones, L., Hajek, R., Sauber, E., Kuo, J., & Davis, D. L. (2007). Personal care products that contain estrogens or xenoestrogens may increase breast cancer risk. Medical Hypotheses, 68, 756–766. https://doi.org/10.1016/j.mehy.2006.09.039

Dunbar, N. M., & Szczepiorkowski, Z. M. (2010). Between the trash can and the freezer: donor education and the fate of cord blood. Transfusion, 51(February), 234–236. https://doi.org/10.1111/j.1537-2995.2010.03018.x

Ergün, S., Kaynak, S., Karadaş, A., & Çevik, C. (2019). An Examination of the preferences towards traditional practices in the postnatal period among the women residing in the service area of a family health centre. Journal of Continuing Medical Education. 28(1),37–47. https://doi.org/10.17942/sted.411964.

Farr, A., Chervenak, F. A., Mccullough, L. B., Baergen, R. N., & Gru, A. (2018). Human placentophagy: A review. The American Journal of Obstetrics & Gynecology, 218(4), 401.e1-e11. https://doi.org/10.1016/j.ajog.2017.08.016

Gönenç, İ. M., Aker, M. N., & Ay, E. (2019). Qualitative study on the experience of lotus birth. JOGNN, September, 1–9. https://doi.org/10.1016/j.jogn.2019.08.005

Grieco, D., Lacetera, N., Macis, M., & Martino, D. Di. (2018). Motivating cord blood donation with ınformation and behavioral nudges. Scientific Reports, 8(252), 1–12. https://doi.org/10.1038/s41598-017-18679-y

Hayes, E. H. (2016). Consumption of the placenta in the postpartum period. JOGNN, 45(1), 78–89. https://doi.org/10.1016/j.jogn.2015.10.008

Hayes, E. H. (2019). Placentophagy, lotus birth, and other placenta practices. The Journal of Perinatal & Neonatal Nursing, 99–102. https://doi.org/10.1097/JPN.0000000000000402

Johnson, S., & Groten, T. (2018). Placenta – worth trying? Human maternal placentophagia: possible benefit and potential risks. Geburtshilfe Frauenheilkd, 78(9),846–852. https://doi.org/10.1055/a-0674-6275

Jung, J., Lee, H., Min, J., Na, K., Hwang, S., & Jin, G. (2011). Placenta extract promote liver regeneration in CCl 4 -injured liver rat model. International Immunopharmacology, 11(8), 976–984. https://doi.org/10.1016/j.intimp.2011.02.012

Katz, G., Mills, A., Garcia, J., Hooper, K., McGuckin, C., Platz, A., Rebulla, P., Salvaterra, E., Schmidt, A. H., & Torrabadella, M. (2011). Banking cord blood stem cells: Attitude and knowledge of pregnant women in five European countries. Transfusion, 51(3), 578–586. https://doi.org/10.1111/j.1537-2995.2010.02954.x

Kim, Y., Ahn, J. H., & Kim, M. (2015). Infectious achilles tendinitis after local ınjection of human placental extracts: A case report. The Journal of Foot & Ankle Surgery, 54(6), 1193–1196. https://doi.org/10.1053/j.jfas.2015.04.028

Kong, M., & Park, S. B. (2012). Effect of human placental extract on health status in elderly Koreans. Evidence-Based Complement Altern Me, 1–5. https://doi.org/10.1155/2012/732915

Kristal, M. B., DiPirro, J. M., & Thompson, A. C. (2012). Placentophagia in humans and nonhuman mammals: Causes and consequences. Ecology of Food and Nutrition, 51(3), 177–197. https://doi.org/10.1080/03670244.2012.661325

Kroløkke, C., & Dickinson, E. (2018). The placenta economy: From trashed to treasured bio-products. European Journal of Women's Studies, 25(2), 138 –153. https://doi.org/10.1177/1350506816679004

Lauber, S., Latta, M., Klüter, H., & Müller-Steinhardt, M. (2010). The mannheim cord blood bank: experiences and perspectives for the future. Transfusion Medicine and Hemotherapy, 37, 90–97. https://doi.org/10.1159/000289589

Monroe, K. K., Rubin, A., Mychaliska, K. P., Skoczylas, M., & Burrows, H. L. (2019). Lotus birth: A case series report on umbilical nonseverance. Clinical Pediatrics, 58(1), 88 –94. https://doi.org/10.1177/0009922818806843

Nolan, R. (2011). Honoring the placenta through art: Making tree of life prints. July/August. Available at: http://www.portlandplacentaservices.com/honoring-the-placenta-through-art-making-tree-of-life-placenta-prints.html (Available date: 27.12.2020)

Ozturk, S., Tufekci Guducu, F., Kara, A., & Kilic, M. (2017). Knowledge and attitudes about cord blood and cord blood banking: Cross sectional study. International Journal of Caring Sciences, 10(1), 335–341. http://www.internationaljournalofcaringsciences.org/docs/37_ozturk_original_10_1.pdf

Pandey, D., Kaur, S., & Kamath, A. (2016). Banking umbilical cord blood (ucb) stem cells: Awareness, attitude and expectations of potential donors from one of the largest potential repository (India). PLOS ONE, 26(May), 1–9. https://doi.org/10.1371/journal.pone.0155782

Park, H., Shim, H. S., Lee, S., Hahm, D. H., Lee, H., & Oh, C. T. (2018). Anti-stress effects of human placenta extract : possible involvement of the oxidative stress system in rats. BMC Complementary and Alternative Medicine, 18(149), 1–8. doi: 10.1186/s12906-018-2193-x.

Park, K. M., & Cho, T. H. (2017). Therapeutic effect of acupuncture point injection with placental extract in knee osteoarthritis. Journal of Integrative Medicine, 15(2), 135–141. https://doi.org/10.1016/S2095-4964(17)60316-9

Qamarazher, A. H. (2017). The Postpartum tradition of sawa mahina in rural Punjab, Pakistan. Journal of Ethnology and Folkloristics, 11(1), 127–150. https://doi.org/10.1515/jef-2017-0008

Saura, B. (2002). Continuity of bodies: The infant's placenta and the island's navel in eastern Polynesia. The Journal of the Polynesian Society, 111(2), 127–145. https://www.jstor.org/stable/20707058

Schoenwald, C. (2016). Moms are making umbilical cord art now because of course they are. Available at: https://www.yourtango.com/2016295493/moms-making-umbilical-cord-art-for-childbirth-keepsakes (Available date: 27.12.2019)

Selander, J., Cantor, A., Young, S. M., Benyshek, D. C., Selander, J., Cantor, A., Young, S. M., & Benyshek, D. C. (2013). Human maternal placentophagy: A survey of self- reported motivations and experiences associated with placenta consumption. Ecology of Food Nutrition, 52, 93–115. https://doi.org/10.1080/03670244.2012.719356

Sharma, S., Teijlingen, E. Van, Hundley, V., Angell, C., & Simkhada, P. (2016). Dirty and 40 days in the wilderness: Eliciting childbirth and postnatal cultural practices and beliefs in Nepal. BMC Pregnancy and Childbirth, 1–12. https://doi.org/10.1186/s12884-016-0938-4

Shinde, V. M., Paradakar, A. R., & Mahadik, K. R. (2009). Human placenta: potential source of bioactive compounds. Pharmacologyonline, 1, 40–51. https://1library.net/document/ye89vj0y-human-placenta-potential-source-of-bioactive-compounds.html

TÜBA. (2014). National Stem Cell Policies Workshop Report. Available at: http://www.tuba.gov.tr/files/yayinlar/raporlar. (Available date: 27.12.2020)

WHO. (2015). Delayed umbilical cord clamping for improved maternal and infant health and nutrition outcomes. Available at: https://www.who.int/nutrition/publications/guidelines/cord_clamping/en/ (Available date: 27.12.2020)

Zinsser, L. A. (2018). Lotus birth , a holistic approach on physiological cord clamping. Women and Birth, 31(2), e73–e76. https://doi.org/10.1016/j.wombi.2017.08.127